REMARKS

In the Final Office Action mailed January 25, 2007, the Examiner rejected claims 1-18 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner stated that the claims contain subject matter that was not described in the specification in such as a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner asserted that the limitation "a visible light data signal" was not described in the specification. The Examiner's assertion also led the Examiner to conclude that Applicant's arguments regarding the absence of a disclosure, teaching, or suggestion of "a visible light data signal" in the Meyer and Baker references were unpersuasive. In light of Applicant's identification of the pertinent portions of Applicant's specification that fully describe "a visible light data signal," which are presented below, the Examiner is respectfully asked to remove the section 112 ground of rejection and appropriately consider Applicant's arguments regarding the deficiencies of the cited references.

Section 112 Rejection

The Examiner has not considered the appropriate sections of Applicant's specification regarding the optical communication interface between the communication probe and a household appliance. The specification describes in meticulous detail the use of an indicator light that is operated as a data transmitter. *Specification*, page 50, line 1-14. An indicator generates light in the

visible spectrum to "indicate" a cycle status or phase to a human operator because the indicator light is used to facilitate human operation of the machine. *Specification*, page 10, lines 15-24. The indicator light is described as being operated in accordance with a data signal to generate light, which must be in the visible light spectrum.

Confirmation that the light generated by the indicator light is in the visible light spectrum is found in the disclosure that the indicator light may be an HLMP-3301 available from Agilent. *Specification,* page 46, lines 1-6. Conducting a search for part HLMP-3301 on the datasheetcatalog.com website retrieves a datasheet that indicates this LED generates light in the range of about 635 nanometers. The visible spectrum of light is from about 390 nm to about 770 nm. This datasheet merely verifies what is explicitly stated in the specification, namely, that the indicator light generates light that is visible to a human. Thus, the transmitter of the appliance implemented with an indicator light is disclosed and fully described in Applicant's specification as generating a visible light data signal.

The optical receiver of the probe, which is an element in claims 1 and 7, is described as being aligned with an indicator light of the appliance for receipt of an optical signal from the indicator light. This optical signal is converted into an electrical data signal by the optical receiver. *Specification*, page 54, lines 3-9. The optical signal refers to the visible light data signal that is generated by the indicator light as described in Applicant's specification on page 50. Thus, Applicant's specification fully describes a visible light data signal that is

generated by an indicator light and then received by an optical receiver of a communication probe for generation of an electrical data signal. This description also supports the inclusion of the limitation directed to the generation of an electrical data signal from "a visible light data signal" as set forth in claim 13. By means of this response, Applicant has directed the Examiner's attention to the appropriate portions of Applicant's specification that fully describe a visible light data signal that is received by the claimed optical receiver and used to generate an electrical data signal. Thus, the ground of rejection under section 112 should be withdrawn.

Advisory Action

In the Office Action mailed January 25, 2007, the Examiner indicated that Applicant's arguments presented with his previous amendment were deemed unpersuasive. These arguments were directed to the absence of "a visible light data signal" in the Meyer and Baker references, which were cited by the Examiner in support of the section 102 and section 103 grounds of rejection. The implication of the Examiner's determination that these arguments were persuasive is that the Examiner did not exam the claims with the inclusion of the visible light data signal limitation. Indeed, the Final Office Action still ignores this limitation as the Examiner's assertion of the rejections of claims 1, 7, and 13, still refer to the optical receiver as generating an electrical data signal from an optical signal, rather than from a visible light data signal. As set forth above, Applicant's specification fully describes the limitation of an optical receiver generating an electrical data signal from "a visible light data signal." Therefore, in the advisory

action responsive to this amendment, the Examiner should exam the pending claims in light of Applicant's arguments regarding the lack of disclosure, teaching, or suggestion, alone or in combination, of a visible light data signal in the Meyer and Baker references cited by the Examiner. To facilitate the Examiner's consideration of these arguments, they are reproduced below.

Claims 7 and 8

In the Office Action, the Examiner rejected claim 7 as being anticipated by Meyer. As set forth in Meyer, the optical link is implemented with light in the infrared spectrum. *Meyer,* col. 17, lines 20-30. Specifically, Meyer requires that the phototransistor that is used to receive an optical data signal be an IR phototransistor. *Meyer,* col. 17, lines 24-27. Applicant has amended claim 7 to more particularly specify that the optical receiver include a sensitive phototransistor for generating an electrical data signal from a visible light data signal impinging upon the receiver. The use of a phototransistor that converts a visible light data signal into an electrical data signal is not taught by Meyer. Moreover, Meyer does not teach or suggest that the phototransistor used in the optical receiver be a sensitive phototransistor as that term is used Applicant's specification. *Specification,* pg. 66, lines 1-13. Consequently, the limitation regarding the sensitive phototransistor that converts a visible light data signal into an electrical data signal is not expressly taught by Meyer. Therefore, Meyer does not anticipate claim 7.

Meyer also does not render claim 7 obvious. Meyer recognizes the inclusion of an LED as an optical indicator to confirm completion of data entry. *Meyer,* col. 7, lines 15-24; col. 17, line 59-col. 18, line 9. Thus, Meyer expressly excludes data communication, either data transmission or data reception, that uses visible light for the data communication. Because Meyer teaches away from the limitations of claim 7, claim 7 is patentable over the references of record, either alone or in combination.

Claim 8 depends from claim 7 and is patentable for at least the reasons discussed above with respect to claim 7. Furthermore, claim 8 includes a limitation directed to the sensitivity of the phototransistor to light in the range of approximately 10 to approximately 30 lx. Meyer does not expressly teach a threshold level for the IR data signal and, certainly, does not expressly identify an operational range for visible light. Consequently, claim 8 is not anticipated by Meyer. Additionally, Meyer does not suggest the use of a visible light sensitive phototransistor sensitive to visible light nor does Meyer suggest the sensitivity range set forth in the claim 8. For at least these reasons, claim 8 is patentable over all references of record, either alone or in combination.

Claim 9

The Examiner has stated that claim 9 is not patentable in view of the combination of Meyer and Baker. Claim 9 requires that the optical transmitter in the bi-directional probe set forth in claim 7 include a high intensity LED. Examiner has confirmed that Meyer does not disclose the use of a high intensity LED. To overcome this deficiency, the Examiner relies upon the teaching of Baker regarding a high intensity LED. That reliance, however, is misplaced as the Baker reference does not use a high intensity LED for data communication between devices. Instead, Baker uses the high intensity LED to indicate to a user of the battery charger disclosed in Baker whether a connection cord has been connected to the battery charger. When the connection cord is not connected, the indicator light is illuminated to let the user know the charger cannot provide a recharging current to a battery. Thus, one of ordinary skill in the art would not combine the teachings of Baker regarding the use of a high intensity LED for the purposes of notifying an operator of a connection cord condition with an optical data transceiver as set forth in claim 9. Thus, the limitation of claim 9, which requires that a high intensity LED be used to generate light pulses in accordance with a data signal, is neither taught nor suggested by the combination of Meyer and Baker. For at least these reasons, as well as those discussed above with respect to claim 7, claim 9 is patentable over all references of record, either alone or in combination.

Claim 10

Claim 10 depends from claim 9 and is patentable for at least the reasons discussed above with respect to claims 9 and 7. Moreover, claim 10 requires that the high intensity LED generate light that is more intense than a standard LED. This light is generated by the high intensity LED in accordance with a data signal. Again, the combination of Meyer and Baker does not teach the use of a high intensity LED to generate light pulses that are more intense than light pulses generated by a standard LED for data communication purposes. Therefore, claim 10 is patentable over all references of record, either alone or in combination.

Claim 11

Claim 11 depends from claim 10 and is patentable for at least the reasons discussed above with respect to claims 10, 9, and 7. Claim 11 also requires that the high intensity LED generate visible light that is more intense than the visible light generated by an indicator light of an appliance. Baker cannot teach that the high intensity LED generates visible light that is more intense than the visible light of an indicator light for the battery charger described in Baker because the high intensity LED *is* the indicator light of the recharging device in Baker. One of ordinary skill in the art, as discussed above, would not combine Baker with Meyer as there is no teaching or suggestion in any reference of record to use an indicator light to transmit a visible light data signal as required by claim 11.

Therefore, claim 11 is patentable over all references of record, either alone or in combination.

Claim 12

Claim 12 depends from claim 10 and is patentable for at least the reasons discussed above with respect to claims 10, 9, and 7. Additionally, claim 12 requires the high intensity LED to generate a visible light data signal in the range of approximately 8,000 to approximately 31,000 millicandelas. The Baker reference does not teach or suggest such a wide range for a high intensity LED and certainly does not teach or suggest a high intensity LED being used to generate a visible light data signal for reception by an external device. For at least these reasons, claim 12 is patentable over all references of record, either alone or in combination.

Claims 1 and 13

Claim 1 requires that an optical transmitter in a bi-directional optical communication probe include a high intensity LED that generates light pulses in accordance with a data signal. Claim 1 also requires that the optical receiver generate an electrical data signal from a visible light data signal impinging upon the optical receiver. As already noted, the high intensity LED of Baker would not be combined by one of ordinary skill in the art with the infrared transceiver of Meyer. Thus, the use of a high intensity LED to generate light pulses in accordance with a data signal is neither taught nor suggested by Meyer in view

of Baker. Additionally, Baker provides no teaching regarding an optical receiver because it is not an optical data communication device. Meyer, on the other hand, discloses an infrared data communication link, but expressly teaches away from the use of visible light for data communication. Therefore, claim 1 is patentable over all references of record, either alone or in combination.

Claim 13 is similar to claim 1 in that it requires the generation of high intensity light pulses in accordance with a data signal and the generation of an electrical data signal from a visible light signal. As already noted, Baker does not teach the generation of high intensity light pulses in accordance with a data signal, but rather as an indication of whether a switch has been closed by a connection cord. Additionally, Meyer expressly teaches away from the generation of an electrical data signal in response to a visible light signal. For at least these reasons, claim 13 is patentable over all references of record, either alone or in combination.

Claims 2-4 and 14-16

Claims 2-4 depend either directly or indirectly from claim 1 and are patentable for the reasons discussed above with respect to claim 1. Additionally, these claims include limitations regarding the intensity of the light generated by the high intensity LED for communicating data to an external device. Baker does not teach or suggest the use of a high intensity LED for the purpose of communicating data and Meyer is silent regarding the use of a high intensity LED and the use of visible light from a LED for communicating data. Consequently,

these additional limitations render claims 2-4 patentable over all references of record, either alone or in combination.

For similar reasons, claims 14-16 are patentable. These claims depend directly or indirectly from claim 13 and are patentable for at least the reasons discussed above with respect to claim 13. Additionally, these claims include limitations regarding the intensity of the high intensity light signal that is generated in accordance with a data signal. Baker does not include limitations directed to the generation of a high intensity light signal in accordance with a data signal. Moreover, neither Meyer nor Baker describes an intensity range for a high intensity light signal that is generated in accordance with a data signal. For at least these additional reasons, claims 14-16 are patentable over all references of record, either alone or in combination.

Claims 5-6 and 17

Claim 5 depends directly from claim 1 and is patentable for reasons discussed above with respect to claim 1. Additionally, claim 5 includes the limitation that a sensitive phototransistor be used to generate an electrical data signal from a visible light signal. None of the references of record discloses the use of a sensitive phototransistor and Meyer expressly teaches away from the use of a visible light phototransistor for converting a visible light data signal into an electrical data signal. For at least these reasons, claim 5 is patentable over all references of record, either alone or in combination.

Claim 6 depends from claim 5 and is patentable for reasons set forth above with respect to claims 5 and 1. Claim 6 further requires that the sensitive phototransistor generate a collector photocurrent of approximately 5 to approximately 15 mA in response to a visible light pulse of approximately 100 lx. None of the references of record discloses a phototransistor that generates a collector photocurrent in this range in response to a visible light pulse as specified by the limitation. Consequently, claim 6 is patentable over all references of record, either alone or in combination.

Claim 17 depends from claim 13 and is patentable for the reasons discussed above with respect to that claim. Additionally, claim 17 requires that an electrical data signal be generated in response to a visible light signal in the range of approximately 10 to approximately 30 lx. This limitation is neither taught nor suggested by any of the references of record as none of the references discloses the generation of an electrical data signal in response to visible light. Accordingly, claim 17 is patentable over all references of record, either alone or in combination.

Claim 18

Claim 18 depends from 13 and is patentable for the reasons discussed above with respect to that claim. Additionally, claim 18 requires that an electrical data signal generation include generation of a current in the range of approximately 5 to approximately 15 mA in response to a visible light pulse of approximately 100 lx. Again, none of the references of record discloses

generation of an electrical data signal in response to a visible light data signal, much less, the generation of an electrical data signal in response to a visible light data signal having an intensity as specified in claim 18. Therefore, claim 18 is patentable over all references of record, either alone or in combination.

Conclusion

For the reasons set forth above, all pending claims comply with 35 U.S.C. 112, first paragraph, and are patentable over all references of record, either alone or in combination. Removal of this ground of rejection will place the application in better form for an appeal. Reexamination and allowance of all pending claims are earnestly solicited.

Respectfully submitted,
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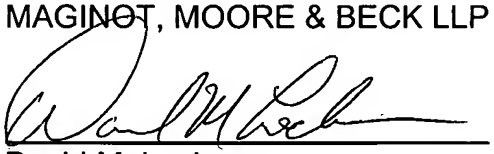

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